WHAT IS CLAIMED IS:

1. A filter cartridge assembly comprising:

a tubular housing having an inner wall, an outer wall, a first end, and a second end, said inner wall including at least a first section, a second section, and a third section, said first section having a first length in a direction from said first end to said second end and a first average inner diameter, said second section having a second length in a direction from said first end to said second end and a second average inner diameter that is smaller than said first average inner diameter, said third section having a third length in a direction from said first end to said second end and a third average inner diameter that is smaller than said second average inner diameter, wherein the inner wall of said tubular housing includes a first shoulder at the intersection of said first section and said second section and a second shoulder at the intersection of said second section and said third section; and

a plurality of filter media sections, including a first filter media section, within the tubular housing and radially contained by said inner wall, each of said plurality of filter media sections having a different filter media composition, wherein said first filter media section has a length in a direction from said first end to said second end that includes at least portions of at least two of said lengths of the inner wall sections such that said first media section traverses at least one of said shoulders.

2. The assembly of claim 1, wherein said assembly further comprises:

a first connector that seals the first end of said tubular housing except at a centrally-located entrance port in said connector where fluid is capable of entering the assembly; and

a second connector that seals the second end of said tubular body except at a centrally-located exit port where fluid is capable of exiting the cartridge.

3. The assembly of claim 2, wherein said assembly further contains a dialysate fluid.

4. The assembly of claim 2, wherein said tubular housing comprises a plastic material.

5. The assembly of claim 4, wherein said plastic material comprises a polypropylene material.

6. The assembly of claim 1, wherein the thickness of said inner wall is less than, or equal to, about 0.125 inch.

7. The assembly of claim 1, wherein said first filter media section traverses said first shoulder, said plurality of filter media sections includes a second filter media section, said second filter media section has a different filter media composition than said first filter media section, said second filter media section has a length in a direction from said first end to said second end that includes at least portions of said second length and said third length of said inner wall sections, and said second media section traverses said second shoulder.

8. A system including the assembly of claim 2, in combination with a fluid circulating device, wherein said device has an outlet and an inlet, said entrance port is in fluid communication with said outlet, and said exit port is in fluid communication with said inlet.

9. A method of filtering a fluid, comprising circulating said fluid through the system of claim 8.

10. A method of preparing the assembly of claim 2, comprising:

providing said tubular housing;

sealing one of said first and second end connectors to said tubular housing;

introducing a first of said filter media sections into said tubular housing;

settling said first media section in said tubular housing; and

sealing the other of said first and second connectors to said tubular body.

11. A filter cartridge housing comprising:

a tubular housing having a conical shape and including a straight inner wall, an outer wall, a first end, and a second end, said inner wall including at least a first section, a second section, and a third section, said first section having a first length in a direction from said first end to said second end and a first average inner diameter, said second section having a second length in a direction from said first end to said second end and a second average inner diameter that is smaller than said first average inner diameter, said third section having a third length in a direction from said first end to said second end and a third average inner diameter that is smaller than said second average inner diameter; and

a first annular flow director extending radially inwardly from the inner wall of said tubular housing at the intersection of said first section and said second section, and a second annular flow director extending radially inwardly from the inner wall at the intersection of said second section and said third section.

12. An assembly comprising:

the filter cartridge housing of claim 10; and

a plurality of filter media sections, including a first filter media section, within the tubular housing and radially contained by said inner wall, each of said plurality of filter media sections having a different filter media composition, wherein said first filter media section has a length in a direction from said first end to said second end that includes at least portions of at least two of said lengths of the inner wall sections such that said first media section traverses at least one of said first and second annular flow director.

13. The assembly of claim 12, wherein said assembly further comprises:

a first connector that seals the first end of said tubular housing except at a centrally-located entrance port in said connector where fluid is capable of entering the assembly; and

a second connector that seals the second end of said tubular body except at a centrally-located exit port where fluid is capable of exiting the cartridge.

14. The assembly of claim 13, wherein said assembly further contains a dialysate fluid.

15. The filter cartridge housing of claim 11, wherein said tubular housing comprises a plastic material.

16. The filter cartridge housing of claim 15, wherein said plastic material comprises a polypropylene material.

17. The filter cartridge housing of claim 17, wherein the thickness of said inner wall is less than, or equal to, about 0.125 inch.

18. The filter cartridge housing of claim 12, wherein said first filter media section traverses said first annular flow director, said plurality of filter media sections includes a second filter media section, said second filter media section has a different filter media composition than said first filter media section, said second filter media section has a length in a direction from said first end to said second end that includes at least portions of said second length and said third length of said inner wall sections, and said second media section traverses said second annular flow director.

19. A system including the assembly of claim 13, in combination with a fluid circulating device, wherein said device has an outlet and an inlet, said entrance port is in fluid communication with said outlet, and said exit port is in fluid communication with said inlet.

20. A method of filtering a fluid, comprising circulating said fluid through the system of claim 19.

21. A method of preparing the assembly of claim 13, comprising:

providing said tubular housing;

sealing one of said first and second end connectors to said tubular housing;

introducing a first of said filter media sections into said tubular housing;

settling said first media section in said tubular housing; and

sealing the other of said first and second connectors to said tubular body.

22. A filter cartridge assembly comprising:

a filter cartridge housing including a tubular housing having a cylindrical shape of constant inner diameter and including a straight inner wall, an outer wall, a first end, and a second end, said inner wall including at least a first section, a second section, and a third section, said first section having a first length in a direction from said first end to said second end, said second section having a second length in a direction from said first end to said second end, said third section having a third length in a direction from said first end to said second end;

a first annular flow director extending radially inwardly from the inner wall of said tubular housing at the intersection of said first section and said second section, and a second annular flow director extending radially inwardly from the inner wall at the intersection of said second section and said third section; and

a plurality of filter media sections, including a first filter media section, within the tubular housing and radially contained by said inner wall, each of said plurality of filter media sections having a different filter media composition, wherein said first filter media section has a length in a direction from said first end to said second end that includes at least portions of at least two of said

lengths of the inner wall sections such that said first media section traverses at least one of said first and second annular flow director.

23. The filter cartridge assembly of claim 22, wherein said assembly further comprises:

a first connector that seals the first end of said tubular housing except at a centrally-located entrance port in said connector where fluid is capable of entering the assembly; and

a second connector that seals the second end of said tubular body except at a centrally-located exit port where fluid is capable of exiting the cartridge.

24. The filter cartridge assembly of claim 23, wherein said assembly further contains a dialysate fluid.

25. The filter cartridge assembly of claim 22, wherein said tubular housing comprises a plastic material.

26. The filter cartridge assembly of claim 25, wherein said plastic material comprises a polypropylene material.

27. The filter cartridge assembly of claim 22, wherein the thickness of said inner wall is less than, or equal to, about 0.125 inch.

28. The filter cartridge assembly of claim 22, wherein said first filter media section traverses said first annular flow director, said plurality of filter media sections includes a second filter media section, said second filter media section has a different filter media composition than said first filter media section, said second filter media section has a length in a direction from said first end to said second end that includes at least portions of said second length and said third length of said inner wall sections, and said second media section traverses said second annular flow director.

29. A system including the filter cartridge assembly of claim 23, in combination with a fluid circulating device, wherein said device has an outlet and an inlet, said entrance port is in fluid communication with said outlet, and said exit port is in fluid communication with said inlet.

30. A method of preparing the assembly of claim 23, comprising:

providing said tubular housing;

sealing one of said first and second end connectors to said tubular housing;

introducing a first of said filter media sections into said tubular housing;

settling said first media section in said tubular housing; and

sealing the other of said first and second connectors to said tubular body.